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Effects of carbon monoxid on plants.—SEELÄNDER[24] concludes from numerous experiments that carbon monoxid is to be regarded in general as a plant poison and should be classed as an anaesthetic weaker than chloroform. It exerts injurious effects upon seedlings of *Lupinus albus* and upon germinating spores of *Mucor stolonifer*, *M. Mucedo*, *Penicillium glaucum*, *Aspergillus niger*, and *Botrytis cinerea*. The injurious effect upon seedlings of *Lupinus albus* is shown by an inhibition in rate of growth of the rootlets, which effect is observable with concentrations varying from 75 per cent to 0.5 per cent. Injurious after-effects are to be observed only when the higher concentrations and long exposures are used. Seedlings exposed to the gas show an increased resistance to drying. The spores of the fungi named, germinated on nutrient gelatin in the presence of carbon monoxid, showed delay in germination, and an inhibition in rate of growth of the hyphae, which, especially in the higher concentrations, were irregularly bent and swollen. The minimum concentration necessary to produce the observed results was 1 per cent. The amount of respiration in tubers of *Solanum tuberosum*, bulbs of *Allium Cepa*, petals of roses and dahlias, and swollen seeds of *Pisum sativum* and *Brassica Napus* was little affected by a mixture of 79 per cent carbon monoxid and 21 per cent oxygen. The streaming of the protoplasm in Nitella and in the hairs of various plants, and the ciliary movements of Chlamydomonas and Haematococcus are not affected by several hours' exposure to the gas.—R. C. ROSE.

Permeability.—RUHLAND has already published a paper[25] showing that many dyes highly soluble in lipoids do not enter the protoplasm, while many not soluble in lipoids do. He now offers still more evidence[26] against OVERTON'S lipoid theory of permeability, especially directing attention to the nature of the water solutions formed by the various dyes as shown by the ultramicroscope. He finds that many of the dyes, the water solutions of which are of a colloidal nature, readily enter the protoplasm; methylorange is an example. Others (wollviolletts and erioglaucin), highly soluble in lipoids and forming true solutions in water, do not enter protoplasm.

RUHLAND also offers evidence[27] against the NATHANSOHN and MEURER'S ion permeability hypothesis, which holds that in the exchange of electrolytes between cells and a bathing solution, an electro-chemical balance is maintained. He points out that OSTWALD'S hypothesis, with which this agrees, has long since become untenable from the physical standpoint. He also believes that the large amount of Ca^{++} and Mg^{++} given off in NATHANSOHN'S experiments in balance with the Na^+ and K^+ taken up was due to the toxic conditions of the experiments. He ends by saying that NATHANSOHN'S methods are not at all reliable for permeability measurements, and that they cannot be taken as the basis of any explanation of the regulatory permeability of the *Plasmahaut.*—WILLIAM CROCKER.

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[24] SEELÄNDER, KARL, Untersuchungen über die Wirkung des Kohlenoxyds auf Pflanzen. Beih. Bot. Centralbl. **24^1**:357–393. 1909.

[25] Rev. BOT. GAZETTE **47**:342. 1909.

[26] RUHLAND, W., Die Bedeutung der Kolloidalnatur wasseriger Farnstofflosung für ihr Eindringen in lebende Zellen. Ber. Deutsch. Bot. Gesell. **26**:772–782. 1909.

[27] ———, Zur Frage der Ionenpermeabilität. Zeit. für Bot. **1**:747–762. 1909.

Fossil woods of Germany.—GOTHAN[28] has described two fossil woods occurring in the brown coals at Senftenberg, from the Lower Miocene. One is a Cupressinoxylon type, *Taxodioxylon sequoianum* Gothan, the structure corresponding to that of *Sequoia sempervirens.* The Cupressinoxylon type of wood in this locality, as in general, is the form most abundantly represented in the brown coals of the Miocene as well as in the Oligocene. The reference of this wood to *Sequoia sempervirens,* or to a closely related species, is in accordance with reports by WEBER, according to whom leaf impressions in beds of similar age at Bonn all belong to *Sequoia Langsdorfii.* The second wood described is that of a new species of pine, *Pinus parryoides.* Although woods of the Abietineae are not nearly so abundant in the brown coals of this horizon as are those of Taxodioxylon structure, they are not rare, and always belong to the group with resin ducts. The epithelium cell walls of the resin ducts of the new pine are provided with pores like those of Picea and Larix, a character not found in any of the recent pines. The question as to its true position is considered at some length, the author arriving at the conclusion that it is the wood of a true Pinus, the character at variance having been lost in recent forms, and that it should be placed in either §PARRYA or §BALFOURIA. Representatives of either of these sections are found only in western North America and eastern Asia.—REINHARDT THIESSEN.

Morphology of Juniperus.—NICHOLS[29] has made a detailed study of the morphology of the American variety (*depressa*) of *Juniperus communis,* obtaining his material from three seasons of collecting near New Haven, Conn. Naturally it is largely confirmatory of the work of NORÉN, SLUDSKY, and Miss OTTLEY, but is especially interesting in its establishment of the time intervals. The staminate strobilus begins to develop during the summer of the year preceding pollination, the mother cells enter into the synapsis stage about May 1, and there is a period of about twelve and one-half months between pollination (May 25) and fertilization. The ovulate strobili begin to appear a few weeks before pollination, the megaspore tetrad is formed late in April, and the female gametophyte develops in about six weeks. The body cell and the central cell divide about three days before fertilization, so that at fusion the egg and sperm are not more than three days old. Some of the more interesting details are as follows: the wall of the microsporangium

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[28] GOTHAN, W., Ueber Braunkohlenhölzer des rheinischen Tertaers. Jahrb. König. Preuss. Geol. Landesanstalt **30**:516–532. 1909.

[29] NICHOLS, GEORGE E., A morphological study of *Juniperus communis* var. *depressa.* Beih. Bot. Centralbl. **25**:201–241. *pls. 8–17. figs. 4.* 1910.